



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,479	02/22/2002	Gottlieb-Georg Lindner	215150US0	6695
22850	7590	01/03/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER	
			NGUYEN, NGOC YEN M	
		ART UNIT	PAPER NUMBER	
		1793		
		NOTIFICATION DATE	DELIVERY MODE	
		01/03/2008	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/079,479	Applicant(s) LINDNER ET AL.	
	Examiner Ngoc-Yen M. Nguyen	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,10-12,14-19 and 22-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,10-12,14-19 and 22-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 22, 2007 has been entered.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10-12, 17-19, 22-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no clear support for the limitations "over a period of 40 to 65 minutes" and "having a solid content of the suspension of from 79.3 to 104 g/l" as now required in the instant claims 10 and 17. Applicants have pointed to Examples 5 and 6 for support, however, on page 9 of the instant specification, in the table, for Examples 5 and 6, the time is for "precipitation period" and there is no "precipitation" recited in the instant

Art Unit: 1793

claims; also in the table, the "g/l (solids content of the earth suspension)" is listed but there is no clear indication that the solids content is before or after the "reacidification" step.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-5, 10-12, 14-19, 22-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP '755, and further in view of Turk et al (4,001,379).

EP '755 discloses precipitated silica granules (note abstract).

Product C(13) has N_2 -surface area (i.e. BET surface area) of $188 \text{ m}^2/\text{g}$; DBP absorption of $216 \text{ g}/100\text{g}$; CTAB surface area of $170 \text{ m}^2/\text{g}$ (note Table 3, Run 13) and maximum Choline chloride absorption of $205\text{g}/100\text{g}$ (note Table 9, Product A (6)). The DBP/choline chloride absorption is $(216/205 =) 1.05$.

In EP '755, the procedure for testing the maximum choline chloride absorption comprises the steps of adding 75% choline chloride solution dropwise to 10 g of the precipitated silica to be tested in a glass beaker. The mixture is stirred with a spatula. The mixture is watched constantly to check when the maximum absorption has been reached. The maximum choline chloride absorption is reached when no more unloaded particles are to be found in the mixture and said mixture is not yet waxy or smeary. The

Art Unit: 1793

maximum choline chloride absorption in g/100g = $[(a-10) \times 100] / 10$ where a = total weight (note page 18, line 20 to line 19, line 1). This maximum choline chloride absorption as disclosed in EP '755 is considered the same as the required "choline chloride absorption" since the procedure for measuring the values are the same in EP '755 as in the instant claimed invention.

EP '755 teaches that precipitated silica is known to be used as reinforcing filler for elastomers (note paragraph [0003]) and as a carrier for choline chloride solution (note paragraph [0004]).

For the Sears number, since the product of EP '755 has all the same properties and being made by the same process (note the reasons stated below), the Sears number for the product of EP '755 would inherently be the same as that of the claimed product.

For the process claims, EP '755 discloses a process for producing precipitated silica by preparing a sodium silicate solution in a container, simultaneously adding sodium silicate and sulfuric acid to the container while maintaining a constant alkali index of 7, stopping the addition of sodium silicate, further adding sulfuric acid until the pH of the precipitation suspension has reached 3.0, and the precipitated silica is separated by means of a filter press and eventually spray dried (note Example 3).

The precipitated silica as disclosed in EP '755 is contacted with choline chloride solution (note Table 9).

For other values other than those disclosed in the Examples, EP '755 further discloses the broad ranges such as for product C, the N₂-surface area (i.e. BET surface

Art Unit: 1793

area) can be from 180-190 m²/g; DBP absorption can be from 220-320 g/100g; CTAB surface area can be 168-171 m²/g (note page 6, lines 20-22). These ranges overlap the claimed ranges.

With respect to the encompassing and overlapping ranges previously discussed, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of invention to select the portion of the prior art's range which is within the range of the applicants' claims because it has been held prima facie case of obviousness to select a value in a known range by optimization for the results. *In re Boesch*, 205 USPQ 215. Additionally, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. *In re Malagari*, 182 USPQ 549.

For the limitation "over a period of 40 to 65 minutes" for the step of simultaneously metering aqueous silicate solution and an acid, EP '755 only exemplifies a period of 90 minutes in Example 3, however, the teaching of EP '755 should not be limited to just the example. For the solids content, EP '755 discloses a concentration of 72 g/l after the addition of only sulfuric acid for 30 minutes (after the "acidifying" step), thus, the solid content before the acidifying step should be higher than 72 g/l. Again, the teaching of EP '755 should not be limited to just the value of 72 g/l as specified in the example.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the process conditions, such as duration of the "precipitation" step, the solid content after the precipitation step, the alkali number, the pH, etc. in EP '755 in order to produce the desired precipitated silica with the properties as listed above.

For the Sears number, since the product in EP '755 is produced by the same process, i.e. constant alkali process, and has values for all other properties that at least overlap the claimed ranges, the range for Sears number for the product of EP '755 would also overlap the claimed range. Applicants have not provided any evidence to show that the process of EP '755 could not produce a product with the required Sears number. In the event that the Sears number is dependent on the alkali number, Turk '370 is applied as stated below.

The differences are EP '755 does not disclose an alkali number of at least 15 and the step of adding of an electrolyte prior to or during the simultaneously adding of sodium silicate and sulfuric acid.

Turk '370 discloses a process for producing silica (i.e., silicic acid) by adding an alkali metal silicate and an acid to an aqueous alkali metal silicate solution while maintaining the alkali number of the reaction mixture substantially constant at a value within the range of 10-40 (note claim 1). Turk '370 also teaches that the precipitation may be effected in the presence of neutral salts (note column 4, lines 53-54). This neutral salt is considered the same as the claimed "electrolyte".

Turk '370 can be further apply to teach that preferably the participants in the reaction are selected so as to obtain an silica end concentration above 65 g silica/l and preferably between 80 and 100 g silica/l (note column 4, lines 3-6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to further add a neutral salt (electrolyte) and to optimize the alkali number between 10-40, as suggested by Turk '370, for the process of EP '755 because such conditions are known and desirable in an analogous process for producing precipitated silica. Thus, when an alkali number of higher then 15 is used in the process of EP '755, as suggested by Turk '370, the process of EP '755 would produce precipitated silica with high Sears number as required in the instant claims.

Applicant's arguments and declaration filed October 22, 2007 have been fully considered but they are not persuasive.

Applicants argue and the Declaration states that the margin of error is +/- 0.25 ml/5g for the Sears number and in previous Declaration, the Sears number of an original sample of Product C Experiment 13 in EP '755 was measured and found to be 22.5 ml/5g, which is at least 10% below the Sears numbers as now claimed in Applicants' claim 1.

Granted that the margin of error is +/- 0.25 ml/5g as stated in the Declaration, the 22.5 ml/5g as disclosed in EP '755 would have suggested to one of ordinary skill in the art a slightly higher value, based upon a reasonable expectation of success, In re O'Farrell, 853 F. 2d 894, 904, 7 USPQ 2d 1967, 1681 (Fed. Cir. 1988) and the

Art Unit: 1793

disclosure of EP '755 should not be limited to just the Example 3. The Example 3 fairly suggests to one skilled in the art that precipitated silica with the desired BET surface area, DBP absorption, CTAB surface area, choline chloride absorption, DBP/choline chloride absorption can be produced by a "constant alkali number" process. Applicants have not provided any evidence to show that the process of the combined teaching of EP '755 and Turk '379 is not capable of producing a silica product with the claimed Sears number. There is no evidence on record to show criticality or unexpected results for the claimed limitations "over a period of 40-65 minutes" and "having a solid content of the suspension of from 79.3 to 104 g/l".

Applicants argue that EP '755 and Turk '379 fail to disclose or suggest a process for preparing precipitated silica having Sears number greater than 25 ml/g.

This argument is not persuasive for the same reasons as stated above.

Applicants argue that the applied references do not teach a process comprising simultaneously metering into a vessel an aqueous silicate solution and an acid "over a period of 40 to 65 minutes" to provide a mixture "having a solid content of the suspension of from 79.3 to 104 g/l."

For these newly added limitations, note the reasons stated in the above rejection.

Applicants argue that Applicants' claims now required a constant alkali number in the mixture of at least 15.

Turk '379 is applied to teach that for a "constant alkali number" process, the constant alkali number should be within the range of 10-40. This range overlaps Applicants' claimed range.

Applicants argue that neither EP '755 nor Turk teaches how to increase the Sears number above 25 ml/5g while simultaneously keeping the DBP/CC ratio below 1.07.

The process of the combined teaching of EP '755 and Turk has substantially all the positive process steps, thus, such process would inherently produce a product having the properties, including Sears number and DBP/CC ratio, similar or overlapping the properties of the claimed product. Furthermore, EP '755 teaches that the silica product is used for the adsorption of choline chloride (note paragraph [0007]), thus, it would have been obvious to one skilled in the art to optimize the process conditions in EP '755 in order to maximize the choline chloride adsorption for the product, thereby minimize the DBP/CC ratio as required in Applicants' claims.

Applicants argue that claim 1 claims a combination of 6 parameters, not just the DBP number.

As stated in the above rejection, the product of EP '755 has the same 5 parameters, only the Sears number is not explicit disclosed by EP '755. When the teaching of EP '755 is taken in view of the teaching of Turk '379, which teaches the constant alkali number within Applicants' claims range, the process of the combined teaching would produce a silica product with all the required properties.

Applicants argue that Turk teaches that increasing the alkaline number would lead to an increase of the DBP.

Granted that Turk does teach that the DBP number of silicic acids that have subjected to a shearing action passes through a flat maximum at an alkali number of 30

Art Unit: 1793

going through the range from zero to 40 (note column 16, lines 9-15), however Turk '379 also discloses that other conditions can also affect the DBP number, such as timing and duration of shear action (note Exs. 1-6, especially column 10, line 50 to column 11, line 34) or circulation frequency and shear gradient (note Exs. 9-17, especially column 13, lines 28-51). Thus, Turk '379 teaches the increase of DBP number is small, note "flat maximum", when increasing the constant alkali number and such increase may be adjusted by changing other conditions in the process, such as circulation frequency and shear gradient. Again, for the combined teaching of EP '755 and Turk '379, the product is desired to have high DBP values (note the range of 220-320 mg/l for product C in EP '755, page 4) and also high choline chloride adsorption because the product of EP '755 is desired to be used for adsorption of choline chloride, thus, it would have been obvious to one skilled in the art at the time the invention was made to optimize the constant alkaline number in the process EP '755, within the range of 10 to 40 as suggested by Turk '379, along with other process conditions in order to obtain a DBP values within the desired DBP range while maximize the choline chloride adsorption as desired by EP '755. Applicants have not provided any clear evidence to show the criticality for the ranges "over a period of 40 to 65 minutes", "having a solid content of the suspension of from 79.3 to 104 g/l" and "a constant alkali number in the mixture of at least 15".

Applicants argue that only a minimal increase of the DBP (due to the increase in the constant alkali number) would cause the ratio DBP/CC of example C13 of EP '755 to increase to 1.073 which would be out of the claimed range.

Art Unit: 1793

For the combined teaching of EP '755 and Turk '379, the use of a different (i.e. higher) the constant alkali number might cause not only the change in the DBP number but also the CC number so the DBP/CC value might be out of the claimed range as argued by Applicants. Moreover, even if the DBP/CC of example C13 of EP '755 was 1.073 as alleged by Applicants, such value would have suggested to one of ordinary skill in the art a slightly lesser value, such as 1.07, based upon a reasonable expectation of success, *In re O'Farrell*, 853 F. 2d 894, 907, 7 USPQ 2d 1673, 1681 (Fed. Cir. 1988).

Applicants argue that the effect on the DBP/CC ratio was not considered.

This argument is not persuasive for the reasons as stated above, namely, the CC is desired to be maximized in EP '755 and the range for DBP values in EP '755 is well within the claimed range, thus, the DBP/CC ratio for the combined teaching would be at a minimum.

Applicants argue that EP '755 does not teach to increase the alkaline number.

It should be noted that the disclosure of EP '755 should not be limited to just the example. It would have been obvious to one skilled in the art to vary the process conditions, including the constant alkali number, in EP '755 as long as the product still has the required properties.

Applicants argue that EP '755 teaches merely a special drying method.

The special drying method as disclosed in EP '755 is not excluded by Applicants' process claims.

Art Unit: 1793

Applicants argue that EP '755 refers to methods described in older patents and what disclosure content do these older patents have with regard to precipitation.

EP '755 fairly teaches in process C, a process of producing silica with a constant alkali number as required in Applicants' claims. It should be noted that not all processes mentioned in EP '755 must teach the claimed process using constant alkali number, the teaching of process C alone is sufficient to teach the claimed process.

Applicants argue that for the Sears number, "the silanol group density=Sears number is determined by the alkali number [AN]".

Since EP '755 teaches a process for producing silica using a constant alkali number, it would have been obvious to one skilled in the art to optimize the constant alkali number within the known range of 10-40, as suggested by Turk '379 to inherently obtain a high Sears number as required in Applicants' claims.

Applicants argue that DE 1467019 and DE 3144299 disclose a method in which the pH must be maintained constant within a certain range.

Again, only process C, i.e. DE 19526476, as disclosed in EP '755 is applied against Applicants' claims.

Applicants argue that in the general description of the method of DE '476, it is disclosed that the alkali number must always be 7 ± 1 .

Even if DE '476, which is not relied upon in the above rejection, teaches the alkali number is 7 ± 1 , DE '476 still fairly teaches a method for producing silica with constant alkali number. The alkali number used in DE '476 is to produce silica product with the properties as listed in the claims (Rausch 5,871,867 is an English equivalence of DE

Art Unit: 1793

'476), however, it would have been obvious to one of ordinary skill in the art to optimize the alkali number in EP '755, such as within the convention range as suggested by Turk '379, in order to obtain the desired product, which is required to have different properties than those in DE '476.

Applicants argue that all manufacturing processes disclosed in the cited patents teach not changing the pH and the alkali number.

EP '755, for product C, the process employs constant alkali number, which by Applicants' definition, such process has changing pH (note Applicants' specification, page 3, lines 15-20), there is no teaching for "not changing the pH" in EP '755, for product C, as alleged by Applicants. As for the not changing the alkali number, note the reasons as stated above for the argument that the alkali number must always be 7 ± 1 .

Applicants argue that the precipitation time also has an influence in the Sears number.

As disclosed in Applicants' specification, the Sears number is dependent on the "initial pH of the suspension" (note page 14, lines 21-24), which is assumed as the pH after the precipitation step and the "initial pH" depending on both the AN and the precipitation time and Applicants have not provided any evidence to show criticality for the combination of the claimed AN and precipitation time in order to obtain the claimed Sears number. Thus, for the process claims, it would have been obvious to one skilled in the art to optimize the process conditions for the process of EP '755, including the AN and the precipitation time to obtain the desired product. Again, the Sears value obtained in EP '755 fairly suggests a slightly higher value, based upon a reasonable

Art Unit: 1793

expectation of success. As stated above, for the product claims, the process as disclosed in EP '755 can have low AN and long precipitation time to cause the "initial pH" to be low, which can have the same pH/AN value as Applicants' claimed higher "initial pH" and higher AN to thereby obtain the same Sears values as required in Applicants' claims.

The rejection of claims 10 and 17 is maintained for the same reasons as stated above.

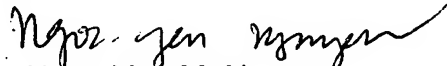
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on a Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Ngoc-Yen M. Nguyen
Primary Examiner
Art Unit 1793

nmn
December 26, 2007